

# Mental well-being among students in Norwegian upper secondary schools: the role of teacher support and class belonging

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## ABSTRACT

Knowledge about factors in school that can promote adolescents' mental health is of great value for national health policies and health promotion work. This cross-sectional study investigated levels of mental well-being measured with *the Warwick-Edinburgh Mental Well-being Scale* and the relationship with teacher support and class belonging among 574 Norwegian high school students, aged 16-17 (55.1% boys). The data stem from the COMPLETE-project. Results showed that students reported an average mental well-being of 3.50 (SD 0.88, range 1-5), with significant differences across gender, study specialization area and socioeconomic status groups. Class belonging partially mediated the observed relationship between teacher support and mental well-being after adjusting for covariates. The findings indicate that a supportive teacher may be a significant factor for both students' class belonging and mental well-being, and suggests that school policies and programs should include a focus on promoting teachers' supportive behavior.

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## INTRODUCTION

There has been a worrying increase in the extent of mental health problems among adolescents, where symptoms of depression appear to increase during adolescence (Reneflot et al., 2018; Sletten & Bakken, 2016). As young people spend a quarter of their waking time at school, school is considered to be one of the life areas with the greatest importance for young people's mental well-being, where they are with friends, engage in identity-forming activities and prepare for the future (Eccles & Roeser, 2011; Norwegian Directorate of Health, 2015a; Samdal & Torsheim, 2012). The term "mental health" generally tends to be associated with negative aspects of the phenomenon, despite the fact that researchers try to distinguish between well-being and mental disorder. Health psychology in the health promotion work emphasizes the resources and opportunities individuals and populations have for creating good health (Naidoo & Wills, 2009). Public health policy documents and programs focus on positive aspects of mental health, such as belonging, coping, autonomy, growth and experience of meaning (Norwegian Directorate of Health, 2014; 2017). There is thus a need to increase the knowledge about factors in the school environment that could have an impact on youth mental well-being, such as the psychosocial class environment. This knowledge can be valuable to increase the understanding of how resources in school can influence or change the health promoting work for young people's mental well-being. The main purpose of the present study was therefore to investigate positive factors in the psycho-

social class environment, measured by teacher support and class belonging, in relation to mental well-being among first grade students in upper secondary school.

According to self-determination theory, every person has three inherent psychological needs; autonomy, competence and belonging (Deci & Ryan, 1985; 2002). Satisfying these needs facilitates the individual's motivation, learning, performance, well-being and mental health (Deci & Ryan, 2015; Ryan & Deci, 2000). Autonomous motivation usually occurs when experiencing positive influence (Deci & Ryan, 2015; Reeve & Jang, 2006). Autonomy support is about seeking methods to encourage, support and enhance the individual's internal "approval" of activities and actions (Reeve & Jang, 2006). According to Ryan and Deci (2000), the need for belonging is a motivation basis for internalization, which is most relevant in adolescence, where young people occupy new attitudes and habits (Naidoo & Wills, 2009). In a school context, satisfaction of the individual's need for belonging implies integration into the social community of the class (Directorate of Health, 2015a). Ryan (1995) sees autonomy support and belonging as integrating processes, with the need for autonomy support being a prerequisite for the experience of belonging and integrating processes. In other words, in a school context, the teacher can, through various measures, help promote the social environment in the class by satisfying students' need for belonging. Further, according to Ryan and Deci (2000) it is essential for students to feel respected and cared for by their teacher in order to accept common values in the classroom.

Previous research gives empirical support for a

positive effect of a good teacher-student-relation on students' mental well-being (Chirkov & Ryan, 2001; Colarossi & Eccles, 2003; Danielsen et al., 2009; Diseth & Samdal, 2014). However, there is disagreement in the literature on the strength of the relationship, and whether teacher support influences students' mental well-being directly or indirectly. In addition, previous research indicates that teacher support can function as a preventive factor on students' development of mental health problems (Wang et al., 2013). Low teacher support, on the other hand, can be a risk factor for the development of depression, in addition to self-reliance, which can affect students' mental well-being in a negative sense (Colarossi & Eccles, 2003; De Wit et al., 2011).

Previous research on the relation between belonging and mental well-being shows that belonging to different groups can contribute to promote students' mental health (Colarossi & Eccles, 2003; Danielsen et al., 2009; Gillison et al., 2008; Jose et al., 2012). Danielsen et al. (2009) examined relationships between social support from fellow students and life satisfaction in their cross-sectional study of Norwegian thirteen and fifteen-year old students, and found that social support from fellow students had a direct correlation with life satisfaction (.32).

Two different longitudinal studies indicate that belonging can predict mental health over time (Gillison et al., 2008; Jose et al., 2012). Gillison et al. (2008) investigated the relationship between belonging in (among others) school and mental health among British students in seventh grade (Gillison et al., 2009). The study found that belonging and quality of life had a mutual relationship, where changes in quality of life could predict changes in belonging, and the opposite. Another longitudinal study measured both school belonging and belonging to friends and peers among fifteen year old students in New Zealand, and found that only school belonging was a significant predictor to well-being over the three time points in the study (Jose et al. 2012). Furthermore, research on belonging and negative health outcomes indicates that high levels of belonging can prevent depression (Colarossi & Eccles, 2003). Whereas loneliness, which can be viewed as the opposite of belonging, has shown to be inversely correlated to mental well-being among youth (Bjørnsen et al., 2017).

Theoretically, it may be considered that teachers have an influence on the overall class environment, and thus the students' experience of class belonging. From the self-determination theory it emerges that autonomy support is important for the sense of belonging (Ryan, 1995). In addition, several authors have exemplified how the teacher role can set guidelines for interactions between students, which can be related to the students' experience of the class environment, and thus also the students' sense of belonging in the classroom (e.g. Bru et al., 2016; Havik et al., 2015;

Lindahl, 2007; Olsen & Mikkelsen, 2015; Norwegian Directorate of Education, 2016a).

However, the existing research related to class belonging and mental well-being are mainly done on students in lower grades (e.g. primary and lower secondary school) (Danielsen et al., 2009; Gillison et al., 2008; Jose et al., 2012). It would also be beneficial with measures covering belonging in a school class context, in relation to the psychosocial class environment. The need for further knowledge lies mainly in empirical findings within a Norwegian context. Likewise, there is almost no research on differences in gender, study specialization and SES with similar study approach. Such findings may have implications for school leadership that focus on creating good mental well-being amongst students in Norwegian high schools.

Following from the above, the aim of this study was therefore to investigate:

- To what extent is psychosocial class environment, measured by teacher support and class belonging, associated with mental well-being among Norwegian grade 1 students in upper secondary school?
- To what extent does teacher support and class belonging predict mental well-being, when adjusting for gender, study specialization and SES?
- To what extent does class belonging mediate the relation between teacher support and mental well-being?

## METHOD

### *Data and sample*

This study is based on data from the COMPLETE project – an ongoing randomized controlled trial evaluating the effect of two interventions to improve psychosocial learning environments in the first grade of upper secondary school (Larsen et al., 2018). Recruitment of schools participating in the intervention project took place between November 2015 and February 2016 (Larsen et al., 2018). All upper secondary schools (about 200) in four different counties in Norway were invited to participate, on the condition that they had no present involvement in similar research projects or interventions (Larsen et al., 2018). Among 19 interested schools, 17 met the qualification criteria, consisting of 3100 grade 1 students in total (Larsen et al., 2018). Survey data were collected through electronic questionnaires during one class hour (45 minutes) under administration of staff, while registry data were obtained from registries from the county or school (Larsen et al., 2018). Further details about the study are found elsewhere (Larsen et al., 2018).

The sample of this study is from the control arm of the first follow-up survey (second data collection), collected in March 2017. The sample consisted of 16-17-year-old (N=574, 55% boys) students from grade 1 in upper secondary school in Norway.

### ***Mental well-being***

Mental well-being was assessed using the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) (Tennant et al., 2007), which is a measure of positive aspects of health, and involves both feelings and functioning (Tennant et al., 2007). The purpose of the scale is to relate to an individual's mental well-being the past two weeks (NHS, 2015). The scale consists of fourteen items, measuring the respondents' different feelings and thoughts, as they responded to a five-point likert scale from *not at all* to *all the time*. Examples of statements include: "I've been feeling good about myself" and "I've been feeling interested in other people". Cronbach's alpha was .959 based on the study's sample.

### ***Teacher support***

Teacher support was assessed by a modified version of the Learning Climate Questionnaire (LCQ) (Williams & Deci, 1996). The ten-item scale referred to assertions about the teachers, where the respondents answered on a five-point likert scale between *strongly agree* to *strongly disagree*. An example of the statements includes "my teachers showed confidence in our abilities to do well". Cronbach's alpha was .954 based on the study's sample.

### ***Class belonging***

Class belonging was assessed with the Teacher and Classmate Support Scale (King et al., 1996; Torsheim et al., 2000). The six-item scale included statements about the class and going to school. The items had a five-point likert scale from *strongly agree* to *strongly disagree*. An example of the statements includes "The students in my class enjoy being together". Cronbach's alpha was .911 based on the study's sample.

### ***Control variables***

Information about gender was based on registry data on biological sex (girl or boy).

The study specialization area contained vocational study and general study, where nine of the education programs were coded as vocational studies (construction, design and craftsmanship, health science, electronics, natural sciences, industrial production, service and transport, as well as two different restaurant and food subjects), while six of the education programs were directly coded as study preparation. The remaining education programs were 4-year education with requirements for skills in both vocational- and general study, and were coded as general study.

The student socioeconomic status (SES) was measured with the question: "How well-off is your family?", with the following response categories, *very well-off*, *well-off*, *somewhat well-off*, *not well-off* and *poorly off*. This question has previously been used in the HEVAS survey (Samdal et al., 2016) and the pilot evaluation of the Dream School Program (Larsen et al., 2012). Due to an uneven distribution of responses

across categories, it was decided to collapse the variable into the following categories: *well-off*, *somewhat well-off* and *not well-off*.

### ***Statistical analyses***

Statistical analyses were conducted with IBM SPSS Statistics 24 and PROCESS v2.16. Independent samples t-test for equality of means was conducted in order to determine whether there were significant differences in gender and study specialization area in the mean levels of the main independent variables (class belonging and teacher support) and dependent variable (mental well-being). ANOVA with post-hoc test was conducted to indicate differences in socioeconomic status groups in the mean levels of the independent and dependent variables. The preliminary report from the COMPLETE study found no indication for clustering by school (ICC of 0.00-0.02). In the report class level, intraclass correlation (ICC), was between 0.04-0.11, suggesting that students in a class had a great influence on each other (Larsen et al., 2017). For the purpose of the current study hierarchical multiple regression analysis was conducted to investigate to what extent teacher support and class belonging predicted mental well-being. A simple mediation analysis was conducted using the statistical module PROCESS in SPSS to investigate the extent to which class belonging mediated the relationship between teacher support and mental well-being.

### ***Ethical considerations***

The COMPLETE project is approved by the Norwegian Centre of Research Data (NSD). Information about study aims and terms of participation was given to all participants prior to participation (Larsen et al., 2018). The anonymity of the participants was ensured in the data collection period as all registry data was handled through anonymous ID numbers and encryption codes. Information about confidentiality was informed in the questionnaires (Larsen et al., 2018).

## **RESULTS**

### ***Descriptives***

Most of the respondents from the study were born in 2000 (87.6%), and were 16-17 years old at the time of data collection. The sample had a relatively even gender distribution (55.1% boys), while field of study had a more uneven distribution (64.3% vocational students). Most respondents considered the family economy as well-off (63.4%). Average scores were relatively high for both mental well-being (3.50, SD=.88), teacher support (3.71, SD=.84) and class belonging (4.05, SD=.80) (Table 1).

### ***Bivariate analysis***

Results from independent samples t-test for equality of means (Table 2) showed that boys reported higher levels of mental well-being (M=3.65) and teacher

**Table 1.** Descriptive statistics for mental well-being, teacher support and class belonging.

Variables	N	Range	Mean	SD	Skewness	Kurtosis	Missing
Mental well-being	507	1-5	3.50	.88	-.397	.084	67
Teacher support	529	1-5	3.71	.84	-.483	.264	45
Class belonging	541	1-5	4.05	.80	-.850	.889	33

**Table 2.** Independent-sample-t-tests to compare the mean scores (standard deviation, SD) on mental well-being, teacher support and class belonging, for groups of gender and study track.

	Mean (SD)		<i>t</i>	<i>df</i>	<i>Eta squared</i>
	Girls	Boys			
Mental well-being	3.33 (.832)	3.65 (.903)	4.18***	505	0.034
Teacher support	3.54 (.802)	3.86 (.844)	4.42***	527	0.036
Class belonging	4.09 (.761)	4.01 (.843)	-1.16	539	0.002
	Vocational study	General study			
Mental well-being	3.46 (.957)	3.56 (.761)	-1.28	489	0.003
Teacher support	3.79 (.895)	3.60 (.729)	2.71*	492	0.013
Class belonging	3.91 (.861)	4.28 (.651)	-5.68***	521	0.056

\* =  $p \leq .05$ , \*\*\* =  $p \leq .001$ .

support ( $M=3.86$ ), compared to girls ( $M=3.33$ ,  $3.54$ ). There were no statistically significant differences in class belonging according to gender. Teacher support had the greatest effect size among gender differences ( $\eta^2=.036$ ), and indicated that 3.6% of the variance in teacher support was explained by gender. Students in vocational subjects ( $M=3.79$ ) reported higher levels of teacher support than students in general-study ( $M=3.6$ ). However, students in general-study reported higher levels of class belonging ( $M=4.28$ ) than students in vocational subjects ( $M=3.91$ ), with a moderate effect size. Class belonging had the greatest effect size among differences in study specialization, and indicated that 5.6% of the variance in class belonging was explained by study specialization area ( $\eta^2=.056$ ).

Results from ANOVA analyses with post-hoc test showed that average values in mental well-being, teacher support and class belonging differed between the socioeconomic groups. Post hoc tests indicated that the average value for group 3 (well-off) was significantly different from both group 1 (not well-off) and 2 (somewhat well-off), in the mean levels of the study variables. The average values in the groups of not well-off and somewhat well-off were not statistically significantly different. Effect size was measured by  $\eta^2$  and showed small differences between the groups, for the mean levels of all three variables.

Pearson's  $r$  correlation analyses were conducted for the full sample, stratified on gender and stratified on study track. In the full sample, both teacher support ( $r=.52$ ,  $p \leq 0.001$ ) and class belonging ( $r=.44$ ,  $p \leq 0.01$ ) were significantly correlated with mental well-being, where teacher support had the strongest correlation of the two. Stratified correlation analysis revealed that teacher support and mental well-being had large correlations for boys ( $r=.53$ ,  $n=264$ ,  $p < .001$ ), vocational

students ( $r=.53$ ,  $n=298$ ,  $p < .001$ ) and students in general study ( $r=.51$ ,  $n=198$ ,  $p < .001$ ), but medium strength for girls ( $r=.46$ ,  $n=232$ ,  $p < .001$ ) (Cohen, 1988). The strength of the correlation between class belonging and mental well-being was medium for boys ( $r=.45$ ,  $n=267$ ,  $p < .001$ ), girls ( $r=.47$ ,  $n=238$ ,  $p < .001$ ) and vocational students ( $r=.42$ ,  $n=302$ ,  $p < .001$ ), but large for students in general study ( $r=.50$ ,  $n=203$ ,  $p < .001$ ) (Cohen, 1988).

### Regression analysis

Hierarchical multiple regression analyses were performed for the full sample, adjusting for gender, study specialization area and SES (Model 1), for boys and girls separately (Model 2), and for vocational and study preparatory studies separately (Model 3).

For the full sample (Model 1), the model as a whole, including all control variables, explained a 34% ( $p < .001$ ) increased variance of mental well-being. Teacher support ( $\beta=.37$ ,  $p < .001$ ) gave the highest unique contribution to mental well-being, followed by class belonging ( $\beta=.26$ ,  $p < .001$ ). Among the control variables, gender ( $\beta=.14$ ,  $p < .001$ ) and SES ( $\beta=.08$ ,  $p < .05$ ) were significantly associated with mental well-being. Study specialization area did not have a significant unique contribution to mental well-being.

In Model 2 (Table 3), stratified by gender, teacher support provided the highest beta value for both girls ( $\beta=.33$ ,  $p < .001$ ) and boys ( $\beta=.41$ ,  $p < .001$ ). For the boys, teacher support ( $\beta=.41$ ,  $p < .001$ ) had about twice as high value as class belonging ( $\beta=.21$ ,  $p < .001$ ).

For Model 3 (Table 4), stratified by study specialization area, teacher support provided the biggest unique contribution to mental well-being ( $\beta=.40$ ,  $p < .001$ ) for vocational students, with about twice as high beta values as class belonging ( $\beta=.21$ ,  $p < .001$ ). For students in the general study track, class belonging ( $\beta=.35$ ,

**Table 3.** Hierarchical multiple regression model for mental well-being, with sample stratified on gender. 95% confidence interval reported in parentheses under B.

	Girls					Boys				
	B	SE B	$\beta$	R <sup>2</sup>	$\blacktriangle$ R <sup>2</sup>	B	SE B	$\beta$	R <sup>2</sup>	$\blacktriangle$ R <sup>2</sup>
Step 1										
Teacher support	.47 (.35, .59)	.06	.46**	.20**		.57 (.46, .68)	.06	.53**	.28**	
Step 2										
Teacher support	.34 (.22, .46)	.06	.33**			.43 (.31, .56)	.06	.41**		
Class belonging	.38 (.25, .51)	.07	.35**	.30**	.10**	.26 (.14, .39)	.06	.25**	.32**	.04**
Step 3										
Teacher support	.34 (.21, .46)	.06	.33**			.44 (.32, .57)	.06	.41**		
Class belonging	.35 (.22, .48)	.07	.32**			.23 (.10, .36)	.07	.21**		
Study specialization	.09 (-.10, .27)	.10	.05			.14 (-.07, .35)	.11	.07		
Socioeconomic status	.12 (-.02, .26)	.07	.09	.31	.01	.09 (-.06, .24)	.08	.06	.32	.003

\* =  $p \leq .05$ , \*\* =  $p \leq .001$ . Adjusted r-square.

**Table 4** – Hierarchical multiple regression model for mental well-being, with sample stratified on study specialization. 95% confidence interval reported under B.

	Vocational study					General study				
	B	SE B	$\beta$	R <sup>2</sup>	$\blacktriangle$ R <sup>2</sup>	B	SE B	$\beta$	R <sup>2</sup>	$\blacktriangle$ R <sup>2</sup>
Step 1										
Teacher support	.57 (.46, .67)	.05	.53**	.28**		.54 (.41, .66)	.06	.51**	.26**	
Step 2										
Teacher support	.46 (.34, .58)	.06	.43**			.40 (.27, .52)	.06	.38**		
Class belonging	.22 (.10, .35)	.06	.20**	.31**	.3**	.41 (.27, .55)	.07	.35**	.36**	.10**
Step 3										
Teacher support	.42 (.30, .54)	.06	.40**			.34 (.21, .46)	.07	.32**		
Class belonging	.24 (.11, .36)	.06	.21**			.41 (.27, .55)	.07	.35**		
Gender	.24 (.05, .43)	.10	.12*			.25 (.07, .42)	.09	.16*		
Socioeconomic status	.07 (-.07, .22)	.07	.05	.32*	.01*	.17 (.02, .31)	.07	.13*	.40**	.04**

\* =  $p \leq .05$ , \*\* =  $p \leq .001$ . Adjusted r-square.

**Table 5.** Full sample mediation analysis, adjusted for gender, study track and socioeconomic status.

		M (class belonging)			Y (mental well-being)			
		Coeff.	SE	p	Coeff.	SE	P	
X (teacher support)	<i>a</i>	.416	.039	.000	<i>c'</i>	.379	.045	.000
M (class belonging)		–	–	–	<i>b</i>	.330	.047	.000
Constant	<i>i</i> <sub>1</sub>	1.882	.2213	.000	<i>i</i> <sub>2</sub>	-.036	.244	.883
		R <sup>2</sup> = .253			R <sup>2</sup> = .364			
		F(4, 847) = 41.247, $p = .000$			F(5, 486) = 55.66, $p = .000$			

$p < .001$ ) had the largest unique contribution to mental well-being, followed by teacher support ( $\beta = .32$ ,  $p < .001$ ) and gender ( $\beta = .16$ ,  $p < .05$ ).

**Mediation analysis**

Results from the mediation analysis indicated that teacher support had an indirect effect on mental well-being through class belonging, even when it was controlled for differences in gender, study specialization area and SES. As shown in Table 5, high levels of teacher support predicted a high degree of class belonging ( $a = .416$ ,  $t(487) = 10.7$ ,  $p < .001$ ). Furthermore,

a high degree of class belonging predicted high levels of mental well-being ( $b = .330$ ,  $t(486) = 7.1$ ,  $p < .001$ ). Bootstrap confidence interval for the indirect effect ( $ab = .137$ ) between teacher support and mental well-being, based on 5000 bootstrap samples, was over zero (.0864 to .1978). This indicates a significant difference between path *c* (.517,  $t(487) = 12.3$ ,  $p < .001$ ) and *c'* (.379,  $t(486) = 8.5$ ,  $p < .001$ ), indicating that there is a partial mediation.

The indirect effect of teacher support on mental well-being, through class belonging, shows that if two respondents have a difference in one unit (answer

category) on teacher support, mental well-being will increase with .137. The overall effect of teacher support on mental well-being was .516 ( $F(4,487) = 51.9, p < .001$ ). The direct effect of teacher support on mental well-being was .379 ( $p < .001$ ), which means that two respondents who vary with one unit on teacher support, but similar to class belonging, will have a difference of .379 units on mental well-being. As the direct effect of teacher support on mental well-being was significant, there was no full mediation. The mediation analysis thus showed that class belonging partly mediates the relationship between teacher support and mental well-being. Normal theory test, also called Sobel test, was significant ( $Z = 5.883, p < .001$ ), which also indicated that class belonging had a partial mediating effect on the relationship between teacher support and mental well-being (Sobel, 1982).

## DISCUSSION

The main purpose of this study was to examine how the psychosocial class environment, measured by teacher support and class belonging, was associated with mental well-being among first grade students of upper secondary school. The results showed that both teacher support and class belonging was associated with the student's mental well-being, with teacher support having the strongest influence.

In stratified analysis, the effect of teacher support on mental well-being was twice as strong as the effect of class belonging on mental well-being, among boys (controlled for the effect of study specialization area and SES) and among students in vocational study (controlled for gender and SES). Among girls, the effect of teacher support on mental well-being was barely stronger than the effect of class belonging. Students in general-study specialization was the only group where class belonging gave a stronger effect on mental well-being than teacher support. Furthermore, the mediation analysis indicated that class belonging had a partial mediating effect on the relationship between teacher support and mental well-being.

The findings in the current study are largely in line with previous research (e.g. Bjørnsen et al., 2017; Chirkov & Ryan, 2001; Danielsen et al., 2009; Diseth & Samdal, 2014; Jose et al., 2012) and theory (Deci & Ryan, 2015; Reeve & Yang, 2006; Ryan, 1995). According to SDT, positive influence, such as teacher support, is an important psychosocial factor for intrinsic motivation, growth and well-being (Deci & Ryan, 2015; Reeve & Jang, 2006). In the systematic review by Krane et al. (2016), support, closeness and respect were indicators of a good teacher-student relationship, which have been associated with students' positive mental health. Trust, choice, practical advice, understanding, accept and care from teacher to student, are some of the aspects in the items that measure teacher support in the present study. Thus, our findings sug-

gest that different aspects of teacher support are important for students' mental health, and this is in line with both theory and research (Deci & Ryan, 2002; Lerner et al., 2005; Lerner et al., 2011; Reeve & Jang, 2006). In SDT, satisfaction of the need to belong in a social group involves integration in the school class (Deci & Ryan, 2002). The need to belong is also, according to SDT, essential to satisfaction and mental health (Ryan, 1995). The findings in the present study of a positive relationship between class belonging and mental well-being lend support to SDT (Deci & Ryan, 2002).

An interesting finding in the current study was that teacher support gave an equal and unique contribution to the respondents' mental well-being, independent of the students' SES and study specialization area. For the full sample regression analysis, teacher support and class belonging combined explained 32% of the variance in mental well-being. This finding is in line with previous research (Chirkov & Ryan, 2001; Colarossi & Eccles, 2003; Danielsen et al., 2009; Diseth & Samdal, 2014), and underscores the importance of teacher support and class belonging for the satisfaction of the psychological need to belong and experience autonomy support for the development of positive health (Deci & Ryan, 2002). Stratified by gender, teacher support alone explained 20% and 28% of the variance in mental well-being for girls and boys respectively. The results indicated that teachers who are perceived as supportive among their students can be considered as important key persons in young people's life.

Previous research provides good coverage for a positive relation between teacher support and mental well-being. Krane et al. (2016) found that teacher support could be associated with positive mental well-being among students in North America, based on both qualitative and quantitative research methods. Studies from Norway also give empirical support for a relationship between teacher support and positive mental health outcomes. Both Danielsen et al. (2009) and Diseth & Samdal (2014) found a moderate correlation strength (Cohen, 1988) of .31 between teacher support and life satisfaction. Class belonging added additionally 10% and 4% for girls and boys respectively. This suggest that class belonging seems to be particularly important for girls, compared to boys. Interestingly, Danielsen et al. (2009) did not find any significant gender differences in the correlation between teacher support and life satisfaction.

The size of the effect found in this study is considerable. In comparison, the control variables SES, gender and study specialization, made a small contribution to mental well-being (approx. 2%). Further on, the control variables of study specialization and SES (step 3) made no significant contribution to mental well-being in our analysis. This indicates that the effect of teacher support and class belonging on girls' and boys' mental well-being is probably not affected by study specialization or SES. This finding was

somewhat surprising as previous research indicates the considerable importance of SES for mental health (Bjørnsen et al., 2017; Samdal et al., 2016). However, previous research on the relation between mental health and SES had either samples of eleven to sixteen year old students (Samdal et al., 2016) or a negative mental health outcome (Bjørnsen et al., 2017), which make them less suitable for comparison with current study results. Furthermore, this finding can be explained by structures in today's society, where West (2009) claims that peers have become more important for youths' mental well-being, unlike the society's socio-economic inequalities. The types of resources and challenges young people face in relation to others seem to be significant for young people's mental well-being.

Stratified by study specialization area, teacher support and class belonging together explained 31% and 36% of the variance in mental well-being for students in vocational study and students in general study respectively. When all the variables were taken into account (in step 3), teacher support ( $\beta=.40$ ) explained twice as much of the variance in mental well-being, compared to class belonging ( $\beta=.21$ ) for vocational students. This indicates that teacher support had a significantly greater explanation of vocational students' variation in mental well-being, compared with the importance of class belonging to mental well-being. However, whether the findings are consistent with previous research cannot be discussed, as it has not been verified in studies with similar approaches.

Inclusion of the control variables gender and SES made significant contribution to mental well-being, except from the contribution of SES among students in vocational study. This indicates that the variation in mental well-being among vocational students depends on what gender they have, but not on how they report their families' socioeconomic status. However, both of the control variables revealed to be significant among students in general study, indicating that their mental well-being in some degree depends on their perception on whether their families are well-off, somewhat well-off or not well-off, and also whether they are boys or girls. Interestingly, SES seems to be important solely for students in general study. Seeing that WEMWBS is a global measure of mental well-being, the difference in the importance of SES between the groups might be explained by differences among schools. The school can play an important role in reducing the effect of SES as they can constitute either a resource, by giving all students the same offer, or a risk, because the ability to use the school-offer varies between the different groups of SES (Samdal et al., 2016). There might also be some differences in the level of pressure or expectations of economic aspects among different schools, although this is mere speculations.

The overall findings can be seen in the context of the ecological systems theory of Bronfenbrenner (1979). Taken into account that all Norwegian students spend

a quarter of their waking hours at school (Naidoo & Wills, 2009), there is reason to believe that the psychosocial class environment influences the students' mental well-being. Findings from the regression analyses revealed group differences in how the class environment affects students mental well-being. In line with Bronfenbrenner's theoretical model (1979), the students' subjective understanding and experience must be emphasized when attempting to acquire knowledge on how the psychosocial class environment affects the students' mental health. From a theoretical perspective, it can be explained that girls and boys have different needs. For example, there are several relevant theories that explain the development of gender roles and biological and cognitive gender differences (Haugen, 2017). According to Bronfenbrenner (1979), adolescents acquire knowledge of gender-related behavior in the microsystem. As the individual gets older, the impact of all ecosystems can influence the development of gender identity. Bronfenbrenner (1979) suggests that people of all ages are constantly evolving as a result of the interplay with the environment. It is therefore not surprising that factors in the psychosocial class environment affect the individual's mental well-being to varying degrees.

The results from this study showed that class belonging partially mediated the relationship between teacher support and mental well-being. In line with theory, our findings indicate that teacher support can promote student mental well-being directly, as well as through class belonging. However, very few mediation analyses have been carried out to examine this mechanism. As such, this study contributes uniquely to shed light on the possible mechanisms between the psychosocial learning environment in school and mental well-being. In studies in the Norwegian context, Danielsen et al. (2009) and Danielsen (2012) found that school satisfaction partially mediated the relationship between teacher support and life satisfaction. According to Danielsen (2012), a potential explanation for the mediation effect is that school satisfaction, as measured in the studies, may reflect to what extent students feel included in the psychosocial learning environment at school. Student satisfaction in school could be a result of having the need for belonging satisfied (Danielsen, 2012).

Having said that, there is a possibility that the relation documented in this study also could reflect the opposite causal direction than hypothesised. For example, it is conceivable that the students will respond generally more positively to people with good mental health than to young people who appear to be more depressed, aggressive or anxious. It is also conceivable that those with good mental health will perceive others more positively. Theoretically, it can be differentiated between two understandings of how mental well-being is established in young people. "Bottom-up" is an understanding that assumes that a person's satisfaction

in life in general is an experience of satisfaction within different life domains, such as school and leisure time (Pavot & Diener, 2008). “Top-down”, on the other hand, emphasizes that the individual’s experience of satisfaction in different life domains is largely influenced by the person’s general life satisfaction (Pavot & Diener, 2008). Pavot and Diener (2008) claim that a person’s life satisfaction is a product of both approaches. It may be envisaged in this discussion that relationships between the psychosocial class environment and mental well-being can be explained through both approaches; through a “bottom-up” approach students’ experience of the life domains, including the school, can contribute to the students’ mental well-being. Through the “top-down” approach, it is conceivable that the students’ level of mental well-being affects their reporting of psychosocial factors in school. The mutual causal relationships are supported in studies by Gillison et al. (2008) and Jose et al. (2012), which has highlighted that different forms of belonging and mental health outcomes have a reciprocal influence.

### **Limitations**

The study had some limitations that should be noted. As discussed, causality in cross-sectional studies cannot be established. There may exist a reciprocal relationship between self-reported social support and mental well-being, this was not tested in the current study. The relationship may also partly be explained by various underlying conditions that have not been controlled for, such as unidentified covariates. For example, one could imagine that if a respondent has a tense or bad mood on the survey day, it could affect the responses on feelings about themselves and also how one experience others. This leads to another issue which is the potential influence of the context. Although WEMWBS is supposed to measure the students’ mental well-being in life in general, it can be discussed whether or to what extent the context, hereby the school environment, influence how the student respond to the questionnaires. If a student experiences a strained relation to school, it may have a negative impact on the student’s feelings and mental well-being in that very moment, due to the influence of school stressors. Different ways of responding to the questionnaire may also have an impact on the results, while some may have a general tendency to respond fairly positively, others will have the opposite tendency. Furthermore, the schools in the sample were self-selected, which could reduce the representativeness of the study, as there is a possible difference between the schools that did and did not report their interest for participation. However, the included schools were randomly divided into intervention groups and control

groups (Larsen et al., 2018), and the current study only includes the control group, which ensures that the sample is not colored by health-promoting measures and thus contributes to strengthening the study’s validity.

### **Strengths**

Despite its limitations, the study has considerable strengths. It contributes empirically to the knowledge based on factors in the school environment that may influence students’ mental well-being. Methodologically, the study is based on a relatively large sample, using validated and standardized measures, and adjusting for relevant confounders – all of which strengthens confidence in the reliability and validity of the results.

### **Implications**

The current study has investigated two of several possible factors from the school environment that can influence youths’ mental well-being. It may be important for further research to investigate the relation between several psychosocial factors in school and mental well-being, as well as explore the topic through qualitative research. Based on results from the current study, there is reason to believe that psychosocial factors in school impact boys and girls differently, which lay the basis for further research on gender differences. In addition, there is a need for further use of the relatively new WEMWBS-scale, both to further confirm the results from the current study and to acquire more knowledge about which factors in school that have an impact on students’ mental well-being.

The study has implications for health promotion practices, as it contributes to increased knowledge for teachers, principals, environmental therapists and educational institutions with teacher education and for those who design political guidelines, when the goal is to promote youth’s mental health and well-being. For practical implications, the study points to the potential importance of teacher support for student mental well-being. However, further research based on a longitudinal design is needed to more firmly establish causality in this relationship

### **CONCLUSION**

The findings of the current study support the notion that psychosocial class environment is related to mental well-being. The study also contributes with new knowledge to the research field by finding that class belonging partially mediates the relation between teacher support and mental well-being. Additional studies, ideally with longitudinal designs, are warranted for further investigation of the observed relationships.



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